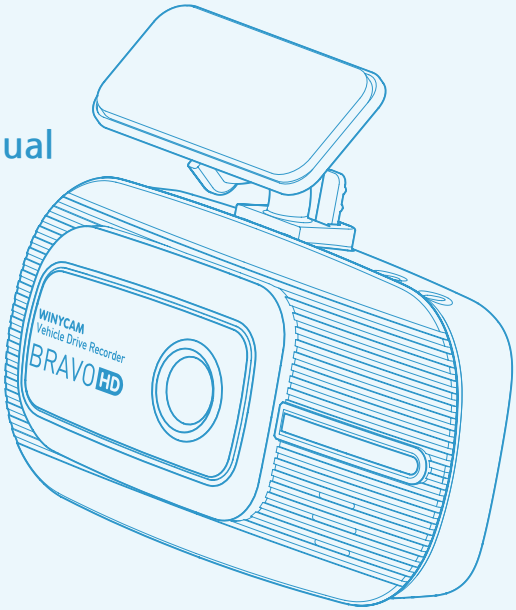
Ver R1.0

WINYCAM Vehicle Drive Recorder

BRAVO Uesr Manual



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Contents

Safety Precautions 2

Before use 4

Product Feature 5
Package 6
Product Parts 7

How to use 8

Front Camera Installation 8
Rear Camera Installation 9
GPS/TV-OUT Cable Installation 10
How to record 11
LED Operation 12
Voice Guide 13
Parking mode event alarm 14
SD Card format automatic alarm function 15
Recording file error detection function 16
How to display Front/ Rear screen 17
LCD Configuration 18
Original Viewer Program Installation 19
PC Original Viewer - Screen Configuration 20
PC Original Viewer - Viewer Configuration 22
PC Original Viewer - Configuration 24
Configuration Default Setting 26
Playback 27
To save video file on your PC 31
REC Time 32
How to separate video 33
Firmware Upgrade 34
Froware Upgrade- Touch Calibration 35
SD Card Format & Set breaking voltage 36
Specification 37
Warranty 38
FAQ 39

Safety Precautions

Caution on Operation and Storage

- Do not operate the product during driving. It may cause accident.
- The product must be installed at a point which would not obstruct the driver's view.
- Do not allow unauthorized disassembly or alteration to the product. It may cause malfunction, and the consequent product damage will not be covered under the warranty.
- If the product is damaged or power is cut off by a serious accident, the product may not be able to record such event
- Always keep the windshield clean to enable clear recording.
- Since the product is purpose to record video data during driving, video quality may be deteriorated when in/out the tunnel, and at night or by contrast and backlight.
- Contaminated camera lens may deteriorate the video quality. Keep the lens clean.
- Do not place the product under direct sunlight or inside the closed vehicle as it may cause malfunction.
- Do not use chemicals or detergent to clean the product. Clean gently with soft cloth.
- Use of the product at temperature below -20℃ or above 70℃ may cause malfunction or breakdown. (This caution should be applied when product is unused.)
- Do not use the product in places in high temperature/humidity.
- Do not exert excessive force to the product (especially to LCD buttons and to bracket) as it may cause breakdown.
- Operate the product for 3-5 minutes to check for correct recording, before each use.
- Prolonged exposure to sunlight and high temperature in the summer may cause malfunction.
- Do not turn off power, or remove the SD card during firmware upgrading as it may cause malfunction.
- Do not touch the cigar lighter cable with wet hand as it may cause electric shock.
- Do not use a damaged cigar lighter cable as it may cause electric shock or fire.
- Do not place the cigar lighter cable in near heating devices.
- Do not leave the product connected to the cigar lighter without using for a long period of time. Remove the cable from the product.
- Insert the cigar lighter securely.
- Do not bend or pull the cigar lighter cable by excessive force, or place heavy objects on the cable.
  (It may damage the cord and as a result it may cause electric shock or fire.)
- Do not touch the LCD excessive force as it may cause malfunction.

Caution on SD Card

- In order to confirm normal operation of the product, please check the image of a SD card and format it on a regular basis. (PC format needed one to two times per month)
- Because an SD card is consumables, if it is used for a long time, you may lose the data or may not record due to an error, so please check it periodically.
- When the product is in recording or the power is on, do not remove the SD card forcibly. It may cause a failure of the SD card and data loss.
- If temperature gets too high in the vehicle, data storing may be disabled, or data may be damaged. Park your vehicle in the shade in the summer.
- When identify the car's accident or damage, please keep the SD card separately. Due to overwrite, important data may be deleted.
- When turn off the power of the body and remove the SD card before LED is turned off, the last recording file may not be saved, so please be careful.
- When turn off the power of the body and remove the SD card before LED is turned off, the last recording file may not be saved, so please be careful.
- When driving a vehicle, do not remove the SD card. Make sure to remove it safely when a vehicle is in parking or stop.
- After turning on the power, make sure that it is in normal operation.
- Please note that the warranty period of an SD card is six (6) months, and replace it at the time of more than six (6) months. Please purchase and use SD Card that manufacture recommended specification.
- The SD card randomly purchased other than the one we provide, shall be excluded from the warranty, and we shall not take any responsibility for loss and damage of the data recorded in the SD card in any case.

Before use

- Thank you for purchasing BRAVO
- This Manual contains important information about the proper use and cautions in use of the product. Please read carefully before use.
- BRAVO is an auxiliary product to alert users for safe driving and prevent accidents, by recording video during driving. Also purpose for evidence of an accident.
- BRAVO does not however guarantee that all accidents are recorded. Minor shock may not detect sensor to record.
- WinyTechnology shall not be liable for any loss or damage to data or to the product which may be caused by accident or impact.
- All rights vested in the design and software of BRAVO are the property of Winy Technology Co., Ltd. and protected by the Copyright Law.
- BRAVO may change without notice for further function improvement.
- This User Manual is published based on the current state of the product, and may contain typographical errors or omissions.
- Contents of this User Manual may be modified, changed or supplemented without notice for further improvement.

Product Feature

• High Quality Lens and High Image Quality Resolution support

- Front 2.0 Mega Pixel / Rear 0.3 Mega Pixel image sensor
- Wide mega lens
- HD(1280x720) High Image Quality Resolution and total 30FPS(Front 20 + Rear 10).

• Various Recording Function and Video Data Acknowledgement

- Touch LCD display apply, recording image and recorded image can be confirmed on LCD
- Normal, Manual, Event, Motion and auto change to Parking recording mode
- Driving records can be stored with GPS data. (optional)
- G sensor by Automatic parking recording mode change and event recording mode.
- External video output. (Real-time video image can be checked on another monitor)
- Configuration setting is available on LCD menu.
- PC viewer program are provided to change various setting values and map data can be checked when using GPS. (In the general video player (e.g. Windows media player), recorded video can be played)
- SD card can be formatted as the product itself, without connecting to a PC.
- Each capacity of a normal / event/ motion folder can be set in PC Viewer.

• High Quality Voice Record and Voice Guidance

- Operating instructions service by voice guidance
- Voice recording On/Off function and speaker output On/Off function.
- High performance microphone built-in

• Back-up battery and vehicle constant power discharge protection function

- Stored recorded image safety by built-in high-capacity capacitor when power is off.
- Vehicle constant power discharge protection function (Selectable ON/OFF on viewer, Not required another equipment for this function)
- Consume less than 2.0mA when power shutdown (Based on 12V)

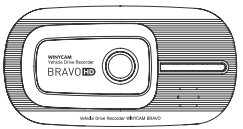
  " When using vehicle constant power discharge protection functions, If user vehicle voltage is 12V and the voltage of less than 11.8V is maintained for more than 5 minutes the product power will be shuts-off "(Note: Shutdown time depend on the Type of Vehicle and vehicle condition.)

• Other

- Soft look and emotional design. (easy removable body)
- Security LED light are mounted on front body (LED Lighting function On/Off can be set in PC viewer / LCD menu)

Package

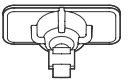
Standard Package



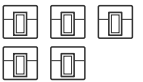
BRAVO Body

Cigar Lighter

3M tape for bracket



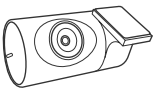
Bracket



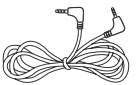
Cable Clip

Micro SD card

SD card Adaptor

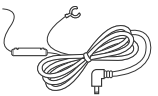


Rear Camera



Rear Camera Video Cable

Option Accessories



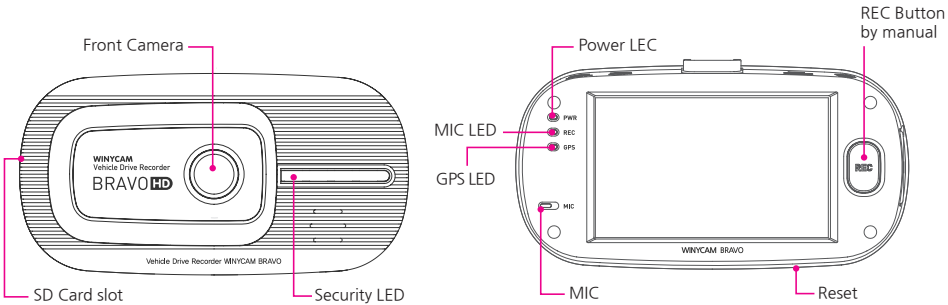
Null Cable

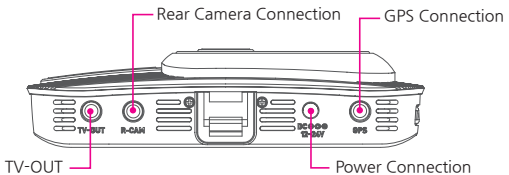
GPS Module

AV - OUT Cable

- The viewer program is stored in Micro SD card.
  ※ Note : Please save PC Viewer program in advance in the computer, etc. so that the program can't be deleted.
  (If the program is lost, please download from Winycam website.)
- The packaged product picture of the user manual may differ from the actual product.
- After the video cable can be connected to TV-OUT cable, recording file and real time recording can be checked with TV/ Navigation.
- Video input type is different depend on monitor and check the user manual of monitor.

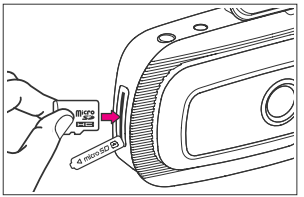
Product Parts



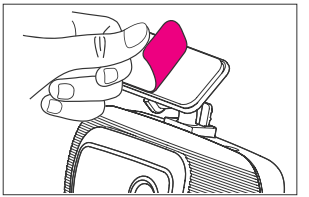


How to use

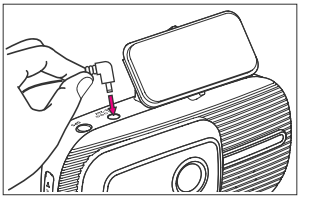
Front Camera Installation



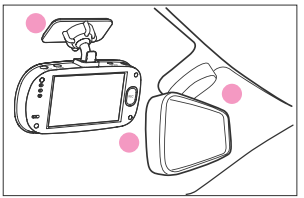
1. Insert Micro SD card to BRAVO SD card slot.
(Check the SD card direction)



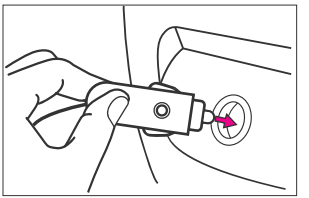
2. Remove the protect sticker.



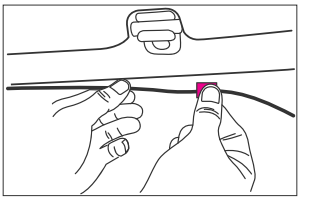
3. Connect Cigar lighter cable to Power connection of product.



4. Attach the BRAVO in place on the top of front windshield or middle o left and right of the mirror.



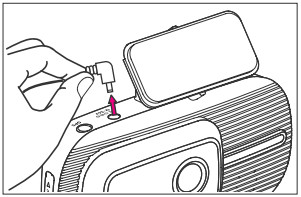
5. Connect cigar lighter to a cigar socket.



6. Arrange a power cable.

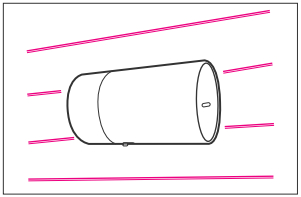
Rear Camera Installation

1. Shutdown a vehicle battery and power



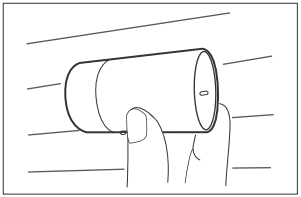
Shutdown a vehicle battery and power off BRAVO first before installing a rear camera. (Disconnect the power connection)

2. Install a rear camera



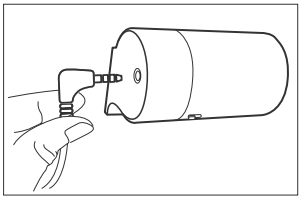
Remove a protect sticker and attach a rear camera in proper location in windshield.

3. Adjust a rear camera angle



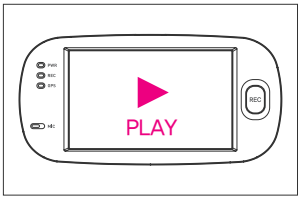
After attached a rear camera, adjust an angle. Adjust angle is e right angle to lens face or little downward facing.

4. Connect video cable



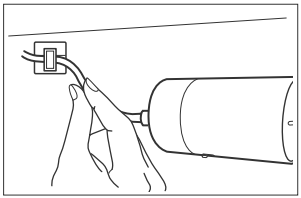
Connect a rear camera jack(smaller side) to a rear camera and a another jack(bigger side) to R-CAM connection.

5. Check an operation



After power on, Please check the recorded image that is stored in Micro SD card if BRAVO can record properly.

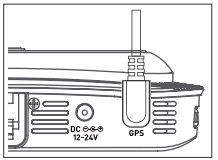
6. Arrange a front/rear camera cable



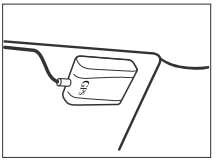
After checking recording operation, well-arrange a cable.
If you embed cable to vehicle wall, please check cable connection. Also after embedded double-check if BRAVO can record properly.

GPS/TV-OUT Cable Installation

▶ External GPS Installation

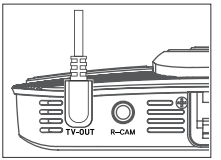


Connect External GPS to GPS connection on BRAVO body.

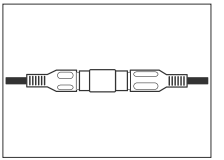


Attach GPS module at well visual place and tidy up a cable.

▶ TV OUT Cable Installation



Connect a TV-Out cable to the TV-Out jack on a BRAVO body.



Connect a TV-Out cable to AV-IN jack your vehicle navigation.

Caution on GPS Installation

- GPS module may be affected by main body or by other electronic devices if it is too close each other. Keep a distance as much as possible.
- The receiving signal may become poor depending on the climate, satellite status and geography in the neighborhood.
- The receiving signal may become poor if the windshield is heavy sun-coated or fixed with metallic materials.

Caution on TV - OUT Connection

- When connecting to your vehicle Navigation, you need an applied vehicle Navigation video cable.
- With a specific vehicle Navigation, installation may be restricted, and/or extra service charge may be incurred.
- Connect to body after checking the location of each connection. Wrong connection may cause malfunction, and the consequent product damage will not be covered under the warranty.

How to record

1. **Record** : BRAVO is automatically boot at power on, and a constant(normal) recording starts as an initial recording mode.
2. **Recording Mode** : it is classified into driving recording mode and parking (motion) recording mode
3. **Recording Method** : it is classified into a Normal recording, event recording, motion recording.

※ For automatic recording and manual recording methods, please refer the below table.

REC Mode	REC Method	Auto REC Mode	Manual REC Mode (Button Control)	REC Time	Recording folder
Driving Mode	Normal REC	-	-	Set 30 / 60 / 120 sec in configuration	Normal
	Event REC	In G-sensor detect shock	One short press button	Before 10 sec, after 20 sec Event/Motion detect	Event
Parking (Motion) Mode	Motion REC	In G-Sensor is not detected for more than 10 minutes Auto change to a motion REC mode.	Three sec press button		Motion
	Event REC	In G-sensor detect shock	One short press button		Event

※ After change to parking recording mode by manual, if you want to change normal recording mode again, please press “REC” button for 3 seconds
(During event recording, the mode cannot be changed.)

LED Operation

<table>
<tr><th>Item</th><th>CH</th><th>Front LED</th><th>PWR LED</th><th>MIC LED</th><th>GPS LED</th></tr>
<tr><td>Booting</td><td>-</td><td>ON</td><td colspan="3">Red lighting ON</td></tr>
<tr><td>FW update</td><td>-</td><td>OFF</td><td colspan="3">Orange lighting ON</td></tr>
<tr><td rowspan="2">Normal, Event,
REC Stanby</td><td>1CH</td><td rowspan="2">Lighting ON / OFF
interval at 1 sec</td><td>Red lighting ON / OFF
interval at 1.5 sec</td><td rowspan="8">Red lighting
ON/OFF based on
audio REC setting</td><td rowspan="8">GPS
NOT Receiving OFF
Receiving ON</td></tr>
<tr><td>2CH</td><td>Green lighting ON / OFF
interval at 1.5 sec</td></tr>
<tr><td rowspan="2">In detect a shock
(Event REC)</td><td>1CH</td><td rowspan="2">Lighting ON / OFF
interval at 0.5 sec</td><td>Red lighting ON / OFF
interval at 0.5 sec</td></tr>
<tr><td>2CH</td><td>Green lighting ON / OFF
interval at 0.5 sec</td></tr>
<tr><td rowspan="2">Parking REC
Stanby</td><td>1CH</td><td rowspan="2">Cross flashing 3LEDs rightleft
interval at 0.5 sec
(1, 2, 3, 3, 2, 1, ···)</td><td rowspan="2">Red/Green flashing
interval at 1.5 sec</td></tr>
<tr><td>2CH</td></tr>
<tr><td rowspan="2">Parking REC
(Motion, Event)</td><td>1CH</td><td rowspan="2">Lighting ON / OFF
interval at 0.25 sec</td><td rowspan="2">Red/Green flashing
interval at 0.5 sec</td></tr>
<tr><td>2CH</td></tr>
<tr><td rowspan="2">Menu</td><td>1CH</td><td rowspan="2">OFF</td><td>Red lighting ON</td></tr>
<tr><td>2CH</td><td>Green lighting ON</td></tr>
<tr><td>No SD Card
(Including other error)</td><td>-</td><td>OFF</td><td colspan="3">Red flashing interval at 0.5 sec</td></tr>
<tr><td>High temperature Cut
off</td><td>-</td><td>OFF</td><td colspan="3">Red/Green flashing interval at 0.5 sec</td></tr>
</table>

※ Even though GPS signal dose not connect depends on GPS situation and location, GPS LED turn on Red lighting.

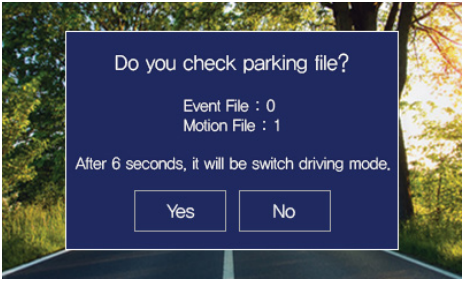
Voice Guide

Situation	Voice Guide
Remove SD card / SD card Error	“Please check your SD card.”
Firmware Update Start	“The firmware update is starting.”
Firmware Update Completed	“The firmware update has been completed.”
Constant (Normal) Recording Start (In booting)	“Constant Recording will start.”
* Event Recording Start (In booting)	“Event Recording will start.”
Parking Recording start	“Parking Recording will start.”
Recording end	“The Recording will end.”
Alarm tone in a Rear Camera disconnect (the error for 2CH REC)	“Ding-Dong, Ding-Dong”

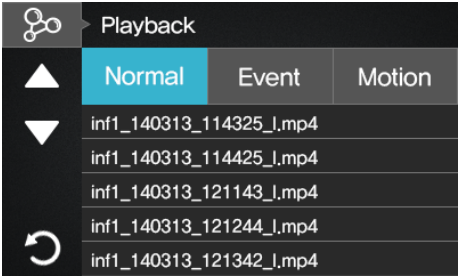
※ Only when event REC mode is set in the configuration, the voice guiding "event recording will start" will announce

Parking mode event alarm

When changing Parking mode to Normal mode, you can check Event, Motion recording files and the number of files on LCD in Parking mode.



When changing Parking mode to Normal mode, display the number of Event/Motion recording files like the image above if Event/Motion recording files are made.



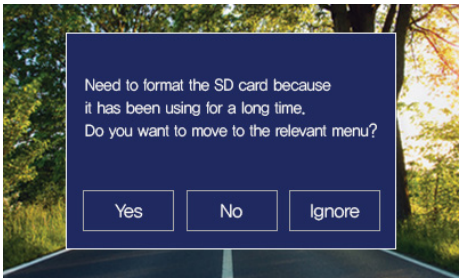
Enter the playback menu like the image above after ending recording when tap the button “Yes” on the list of LCD

Cution

- It is possible to record normal recording only during pop-up note, not possible to operate other menu (Event recording and other button)
- Make a sound Ding-Dong interval at 3 seconds during pop-up note, and if you don’t push any button for 10 seconds or push the button “No”, enter the Normal recording after pop-up note disappear.

SD Card format automatic alarm function

If you don't format SD Card on a regular basis and it is used for a long time, important recording file may not be saved by error. Therefore, after a lapes of 10days without formatting, let users know the information about SD Card format day by auto check program.



- When "Yes" is selected, move Menu-> Others-> SD Card format menu in Configuration Format is recommended for the stable REC continually.
- If you select "No" or nothing happens, pop-up note will disappear after 10 seconds and it will appear it after 1 hour.
- If you select "Ignore", pop-up note will appear after 10 dyas.

Recording file error detection function

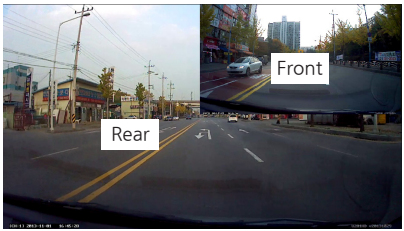
When SD Card is removed forcibly or is damaged, an image will not be recorded normally. To protect it, this alarm will display to format SD Card when BRAVO detect error automatically.

- When “Yes” is selected, move Menu-> Others->SD Card format menu. It is recommended for the stable REC continually.
- If you select “No” or nothing happens, pop-up note will disappear after 10 seconds.

How to display front/ Rear screen

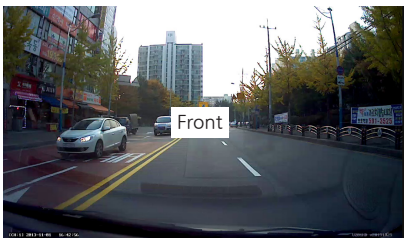
- When 2CH is setting, if you touch right upper screen (¼ of whole screen), LCD screen will be changed automatically Front/Rear, Rear/Front, only Font, only Rear.
- Only LCD Screen looks different, 2CH images will be recorded when rear camera is connected.

Front/Rear LCD Screen



Rear/Front LCD Screen

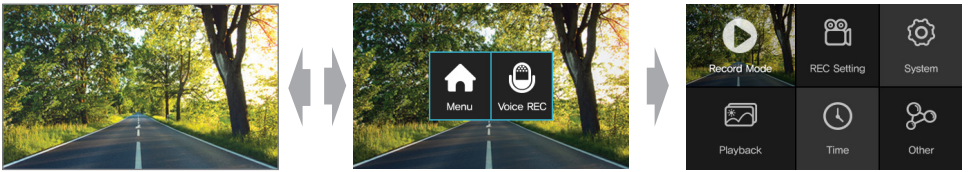
Rear LCD Screen



Front LCD Screen

LCD Configuration

All configuration can be set on LCD menu.



Menu		Function
Record Mode		Start the recording on setting
Playback		Display REC list
REC Setting	REC Mode Setting	Set REC Mode
	Video Quality	REC Video Quality
	REC Time	Set Normal REC Time
	REC CH	Set REC Channel
	Motion Sensitivity	Set Motion Sensitivity
	G-Sensor Sensitivity	Set 3D Sensor Sensitivity
	Voice Guide Volume	Set Voice Guide Volume Level
	REC Volume	Set REC Volume
	SD Card Adjustment	Set SD Vehicle Capacity Rate by mode
	Parking Mode Change	Set Auto Change to Parking mode

Menu		Function
System	Breaking Voltage	Set Breaking Voltage
	Front Camera Setting	Set front camera sensor
	LCD Screen Saver	Set LCD Screen Save Time
	TV-Out	Set TV output
	LCD Setting	Set Video output on LCD
	OSD Setting	Set OSD output on LCD
	Front LED Setting	Set Security LED
	Shutdown by Temp	Set High Temperature Shutdown Function
Time	Time setting	Set Time
	Standard Time	Set Standard Time
	Summer Time	Set Summer Time
Other	FW Update	FW Upgrade Function
	SD Card format	SD Card Format Function
	Touch Calibration	LCD Touch Screen Calibration
	Configuration Initialization	Initialize Configuration
	System Information	Display System Information

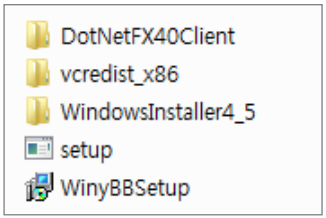
Original Viewer Program Installation

1. System Requirements

- Windows XP(32bit), Windows Vista(32bit), Window7(32/64)
- Pentium4 2.8GHz & RAM over 1GB.
- Display monitor resolution: 1024 X 768
- DirectX Support (WPF)

2. Install

- Playback program is in packaged Micro SD card.
- Insert this SD card into the USB card reader and connect to the computer.
- An executable file is in the SD card as below figure.

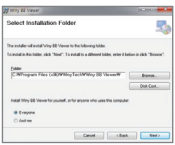


※ Installation may tale long depend on PC Usage environment.

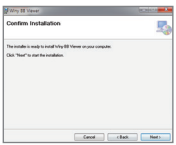
If you run “setup.exe”, Winy BB Viewer will be installed. And then,
installation will be continued according to the installation sequence of setup dialog box.

①

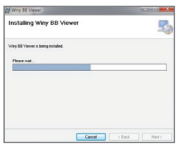
Next

② 

Select file location and click “Next”

③ 

Next

④ 

Installing

⑤

Complete installation

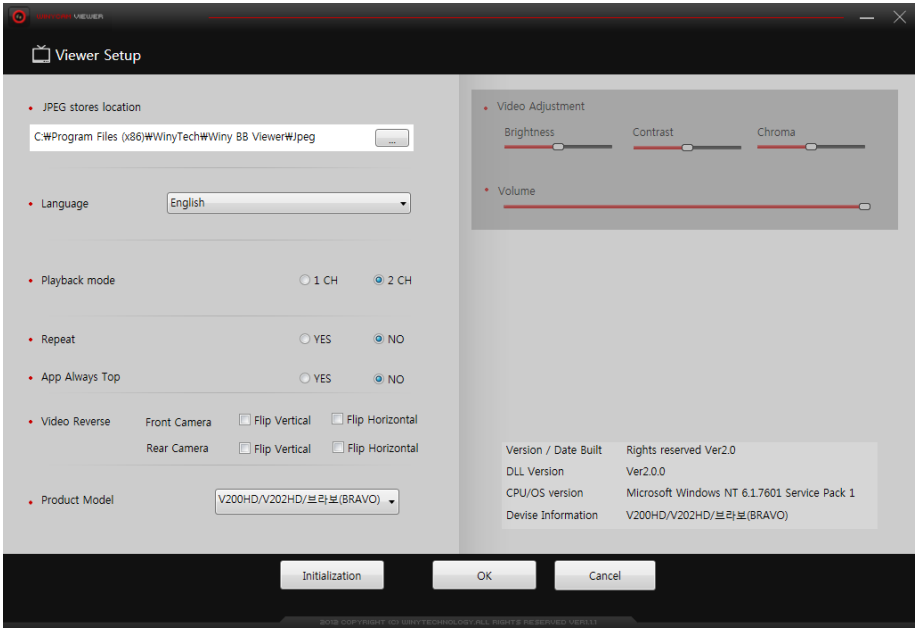
※ If viewer program is lost accidentally, please visit our website winycam-eng and download to the SD card

PC Original Viewer - Screen Configuration

How to use

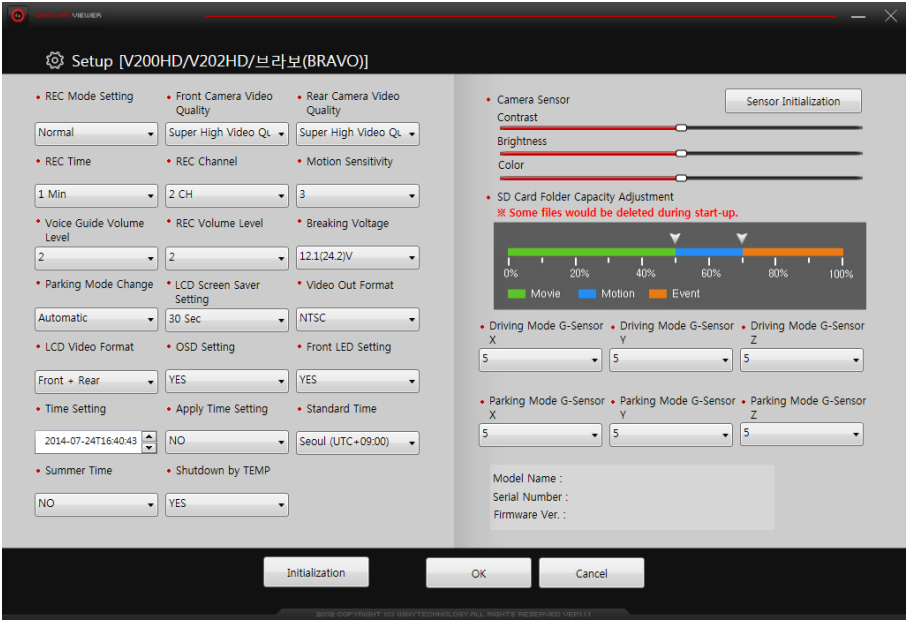
Item	Function	Item	Function
①	1CH / 2CH Select screen	⑯	Fast-Rewind
②	Viewer Configuration	⑰	Playback or Pause
③	System Configuration	⑱	Stop
④	Print	⑲	Fast-Forward
⑤	Screen Capture	⑳	File Skip
⑥	Zoom	㉑	Control Volume
⑦	Play List/Map Button	㉒	Total File Time/Playback Time
⑧	Playback File Location	㉓	Brightness/Contrast/Chroma
⑨	REC File List / Map Display	㉔	GPS signal condition
⑩	Playback Video Image	㉕	Driving speed
⑪	Playback Control	㉖	Latitude/Longitude
⑫	Full Screen	㉗	G-sensor information
⑬	Flip Horizontal	㉘	Split image
⑭	Flip Vertical		
⑮	File Skip Back		

PC Original Viewer - Viewer Configuration



Item	Function
JPEG stores location	Set location for captured JPEG image.
Language	Select language.
Playback mode	Select display channel.
Repeat	Select repeated playback.
App Always Top	Select App is always the top of another window.
Video Reverse	Video can reverse from side to side and up and down
Product Model	Select the model.
Video adjustment	Control playback speed
Volume	Control recording volume level

PC Original Viewer - Configuration



Item	Function
REC Mode Setting	Select the recording mode
Front Camera Video Quality	Select video quality in a front camera
Rear Camera Video Quality	Select video quality in a rear camera
REC Time	Select recording time for each file
REC Channel	Select a recording channel
Motion Sensitivity	Select a motion sensitivity level during parking mode (Level 1 is the most sensitive)
Voice Guide Volume Level	Select voice guide volume level
REC Volume Level	Select a recording audio level
Breaking Voltage	Select a breaking voltage for a constant power discharge protection function
Parking Mode Change	Select a parking mode auto-change function
LCD Screen saver Setting	Select LCD screensaver function
Video Out Format	Select TV-Out format

Item	Function
LCD Video Format	Select the type of LCD video
OSD Setting	Select OSD out on LCD
Front LED Setting	Select front security LED function
Time Setting	Set the time
Apply time setting	Changed time will be applied to the product when select "Yes". (Default: No)
Standard Time	When using GPS, set the time automatically
Summer Time	Select your local time zone
Shutdown by TEMP	Determine to apply Temperature Cut off o no
Camera Sensor	Control Brightness, Contrast, Chroma. It will be changed when press the initialization button
SD card folder Capacity Adjustment	Adjust storage space ratio by recording folder in the entire SD card storage capacity
G-Sensor	Select a shock sensor sensitivity level (Level 1 is the most sensitive)

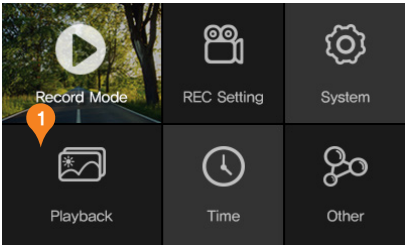
Configuration Default Setting

Item	Setting Value
REC Mode Setting	Normal REC
Front Camera Video Quality	Super High Quality
Rear Camera Video Quality	Super High Quality
REC Time	60 sec
REC Channel	2CH
Motion Sensitivity	3 (1: Most sensitive)
Voice Guide Volume Level	2
REC Volume Level	2
Breaking Voltage	12.0(24.0)V
Parking Mode Change	Auto
LCD Screen saver Settin	30 sec
Video Out Format	NTSC
LCD Video Format	Front+Rear

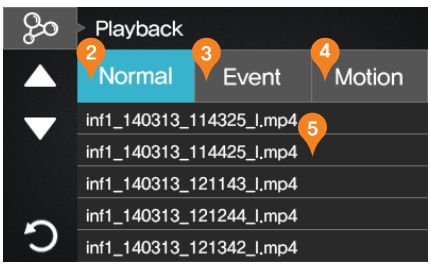
Item		Setting Value
OSD Setting		YES
Front LED Setting		YES
Time Setting		PC Setting value
Apply time setting		NO
Standard Time		UTC +09:00
Summer Time		NO
Shutdown by TEMP		YES
Camera Sensor	Contrast	Middle
	Brightness	Middle
	Color	Middle
SD Card Folder Capacity Adjustment (%)	Movie	50
	Motion	20
	Event	30
Driving/Parking mode G-Sensor Sensitivity		5 (1: Most sensitive)

Playback

1. Playback with Black box LCD



NO.	Item	Display	Function
1	Playback	Icon	Playback icon tab
2	Normal	Tab	Display Normal REC file list
3	Event	Tab	Display Event REC file list
4	Motion	Tab	Display Motion REC file list
5	REC File list	List	REC File
6	Playback REC	Window	REC video playback window
7	Former file	Button	Fast - Rewind
8	Playback/Stop	Button	Playback/Stop REC file
9	Next file	Button	Fast - Foward
10	Front / Back	Button	Switch front / rear video image
11	Back	Button	Back to file list



2. Playback with Standard video player

1) Remove a SD Card from BRAVO

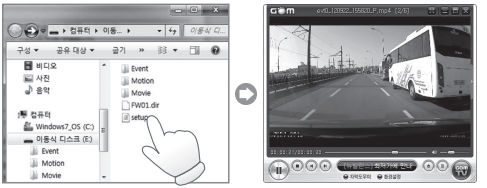
Open a SD Card slot cover and press softly, then a SD Card can be removed easily.

2) Connect a SD Card to PC

Insert a SD card to SD Card Reader or to adapter, and connect it to PC.

3) Playback

Open a removal disc, you can see each folders. And click files to playback which is stored in each folders.



Note

- Each recorded video is saved in below folder automatically.
  Normal : Constant record
  Event : Shock sensor record
  Motion : Motion sensor record (Parking mode)
- GPS Information is displayed in the original viewer.

You can check only front REC when playing by standard video player.

3. Playback with PC original viewer

1~2) Same method to playback as astandard video player.

3) Original Viewer Program

Click icon for the original viewer

4) Find a REC file location

Click “FILE LOCATION” in original viewer on upper right. Choose file location, video file list will be shown

5) Playback

※ Click

N : Normal REC file list

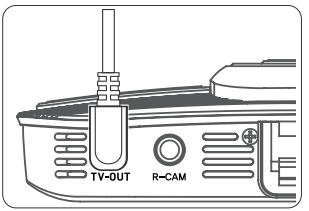
E : Event REC file list

P : Parking REC file list

4. Playback with TV/Vehicle Navigation

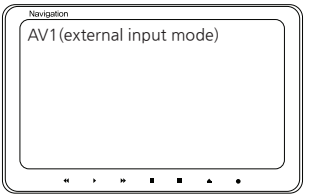
1) Connect TV Out cable

- Connect TV Out cable to TV-OUT terminal on the product.
- Connect TV Out cable to video input terminal on the TV /Vehicle navigation. (TV Out cable : Option)



2) Set the video input mode

- Set the video input mode on TV/Vehicle navigation first and playback video for real-time monitoring
- Real-time recording image ONLY.



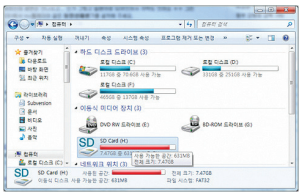
Note

- Available only TV/Vehicle navigation has external input terminal. Please check the TV/Vehicle navigation supplier for an external monitor cable.
- Mode change method is different for each modes, please refer user manual of TV/Vehicle navigation. If remove or insert TV Out cable during recording, recording will end and start reboot.

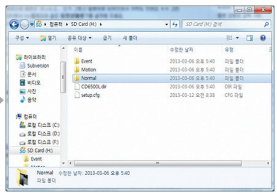
To save video file on your PC

1. Enter to removal disc after insert SD card to your PC.
2. Go to the folder where recorded video files are stored.
3. Create the new folder in same location.
4. Drag the particular file to the new file to copy. (If you drag a folder, the whole folder will be copied.)

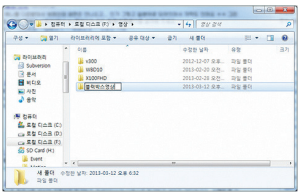
1.



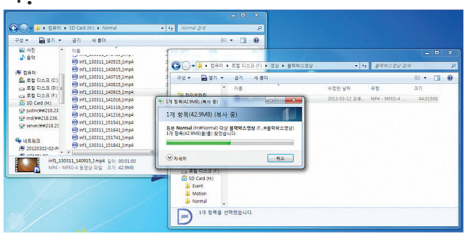
2.



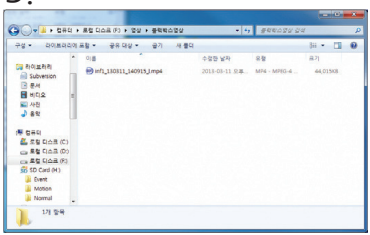
3.



4.



5.



REC Time

▶ Default set

CH	Image Quality	Camera	16GB			32GB		
			Normal(50%)	Event(30%)	Motion(20%)	Normal(50%)	Event(30%)	Motion(20%)
1CH	Super High	Front	130	78	51	266	158	105
	High	Front	174	105	69	353	212	141
	Normal	Front	262	157	104	531	318	212
2CH	Super High	Front/Rear	141	83	55	285	168	111
	High	Front/Rear	176	104	69	356	211	140
	Normal	Front/Rear	265	161	107	535	325	216

(Unit: minute)

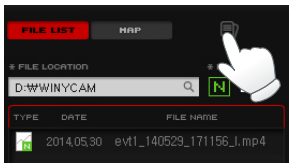
Note

- **By time :** When the memory is full, the oldest file will be automatically deleted.
- **By mode :** Total record files are stored by your setting rate on "SD card Folder Capacity Adjustment"
  When memory is full on a particular recording mode, the oldest file will be automatically deleted on particular recording mode. Stored file may also be deleted.

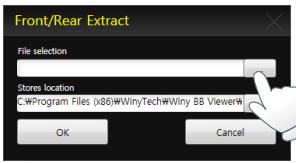
How to separate video

1. Press “Front & Rear Extract” button on the original PC viewer program.
2. Select a video file to separate and click “OK” button.
3. Stored separated file in “C:₩Program Files₩BlackBoxViewer₩BlackBoxViewer₩Video”

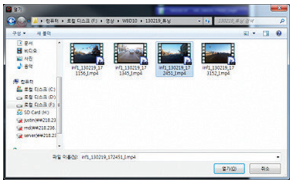
1.



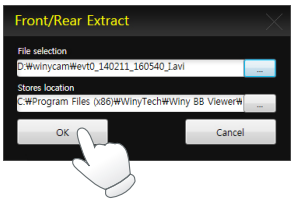
2.



3.

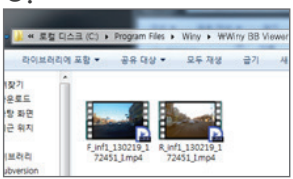


4.



5

6.



Firmware Upgrade

1. Auto Firmware Upgrade

1) Remove the SD card from BRAVO after turning off the power completely.
2) Backup all files that are stored in the files to your PC.
3) Format a SD card on PC. (Please refer “how to format” in the quick guide)
4) Download the latest firmware from our website (http://www.winycam-eng.com) and copy to a SD card.
5) Insert the SD card to BRAVO. After power ON then firmware will be updated automatically.
6) During firmware updating, a voice guide will be announced and updating massage will be displayed ion LCD.
7) When the firmware update is completed, BRAVO will be initialized and a voice guide will be announced

2. Manual Firmware Upgrade

1) Insert a SD card which new firmware is stored to BRAVO.
2) “Menu > Other Setting > FW Update”
3) Same progress as above step (6) in auto firmware update.

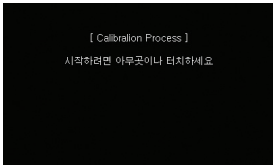
Note

After firmware update completed, the touch calibration will run to ensure for accurate touch sensitivity. Press the “DONE” button after thatching 4 yellow points to finish the Touch Calibration properly. If you have pressed “RESET” button by mistake, BRAVO will re-boot and complete the Touch Calibration procedure.

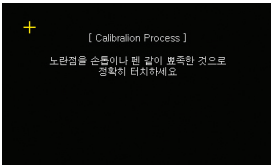
Froware Upgrade- Touch Calibration

▶ How to calibrate scree after booting

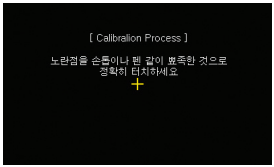
Loading Logo will be up after a firmware is completed.



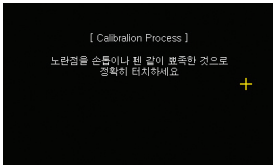
Touch a screen in any point.



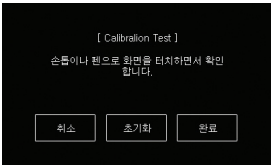
Touch a yellow dot correctly.



Touch a yellow dot correctly.



Touch a yellow dot correctly.



Touch anywhere except button and confirm calibration is completed.

- **OK :** Completed calibration and turn to Normal REC mode.
- **RESET :** Go back to a test calibration screen.
- **CANCEL :** uncompleted a calibration and turn to Normal REC mode.

Note

If you touch wrong point during calibration, press REC button. Then it will be initialized and loading screen will be shown. Keep pressing REC button, a calibration button can be skipped.

SD Card Format & Set breaking voltage

1. SD Card format

1) On PC

Connect a SD card to your PC, and click on'My Computer' → Right-click'Removable Disc'and select on 'Format'from the menu. → Set allocated value as 32KB and press "Start" to format.

Note

- User manual and viewer program are stored on packaged SD card, please note all data will be deleted if you format a SD card.
- Please backup user manual and viewer program on your computer before you format a SD Card.
- Please set FAT32 for file system when you format a SD Card.
- If you format as NTFS or another format, SD card will not be recognized and product can not work correctly. We recommend allocated value 32KB when you format a SD Card.

2) Format on BRAVO

Format a SD Card on a device. (Menu > Others > SD Card Format)

2. How to install Constant power discharge protection function

This device has the built-in vehicle constant power discharge protection function, and therefore does not require an extra device to cut off constant power. With the configuration on LCD or PC Viewer program.
You can set the Cut Off Voltage for the constant-power-off function.

1) Configuration

Menu > System > Cut off voltage

2) PC Viewer Program

Configuration > Breaking Voltage
There are some differences depend on a type of vehicle and vehicle age.
(Breaking Voltage : 11.8V, 11.9V, 12.0V, 12.1V, 12.2V, OFF)

Specification

Item	Specification	Item	Specification
Camera	Front 2.0M Pixels / Rear 0.3M Pixels	Video Output	NTSC / PAL Composite
G - Sensor	3D Shock Sensor	Voice Recording	Built-in high sensitive microphone
GPS	External GPS Module (Option)	Voice Guidance	Built-in speaker
Video Compression	H.264/AVC	Recording Media	Micro SD Card (SDHC)
Audio Compression	PCM	Power Input	DC 12V ~ 24V Free Voltage
Recording Channel	2 Channel	LCD	3.0" TFT LCD, 400 X 240 Resistive Touch Display
Recording Resolution	Front : HD (1280 x 720) Rear : VGA (640 x 480)	Size/Weight	106(W) x 53(H) x 25(D)mm ARO 88g (Bracket excluded) 98g (Bracket included)
FPS	1CH : Front 30FPS 2CH : Front 20FPS /Rear 10FPS	Storage Temperature	-40℃ ~ +85℃
Image Quality	1CH : Super High / High / Normal (bitrate 8/6/4Mbps - HD Standard) 2CH : Super High / High / Normal (Front : bitrate 4/3/2Mbps - HD Standard Rear : bitrate 2/2/2Mbps)	Operating Temperature	-20℃ ~ +70℃

FAQ

1. Power is not turned on.
※ Check once again if the power cable is properly connected. If the problem is not solved, please contact manufacture.

2. The map is not shown when a video is played on a PC original viewer program.
※ Check your Internet connection. Check if your Internet Explorer is v7.0 or higher.

3. Power is connected, but LED is not lightning.
※ Check if the power cable is connected properly. Then if still LED dose not lightning, the product or the SD card may be defective. Please contact manufacture.

4. GPS signal dose not recognize. (GPS is sold separately.)
※ GPS signal reception may be interrupted temporarily depending on the environment and locations. Drive your vehicle to other location where GPS signal reception is abled. Please wait 3-5 minutes in the GPS signal reception area.
If the signal still dose not recognized, please contact manufacture

5. The product does not recognize the SD card.
※ Remove the SD card from BRAVO after power OFF, and check for any foreign material or abnormality around the connecting terminal. Format the SD card and try again. If the SD card is old, please replace to a new one.

Note

- **Precaution before use**

1. Please check for any defect on the product before installation. The Company shall not take responsibility for any cost or expense incurred as a result of the failure to check before installation.
2. If installation was held at a service center other than those designated by the Company, the Company shall not take a responsibility for cost or expense charged at such center.
3. If the constant power protect function is set 'OFF', monitoring during parking will be performed only for a certain period of time. If the vehicle battery voltage is lowered for self-protection, power to the device may be disconnected even in the Parking Mode disabling the recording.
4. The Micro SD card should be formatted every other week, as it may cause a recording error, a disabling saving file or playback error.
5. A SD card is a consumable. Use of an aged SD card may cause error. Please replace on a regular basis.
6. When a vehicle accident occurred, turn off power of the product immediately, remove the SD card and save the accident file on your PC. If the file is erased due to the times away, the Company shall not take responsible.

Warranty

1. The products are manufactured through the strict quality control and inspection process.
2. The defect occurring in normal use of user within the warranty period will be repaired free of charge.
3. If the warranty period has passed, we will repair by paid charge.
4. Please take this "Warrantee" when you request repair.
5. Please keep this "Warrantee" because we will not be able to re-issue this warrantee note.

Model Name	BRAVO	Product	Vehicle Drive Recorder / Rear Camera
Serial No		Purchase date	YY MM DD
Customer		TEL	
Address			
Purchase from		TEL	

■ **Warranty Details (Conditions)**

1. Free Service

   Product : 1 Year from purchase date.

   Micro SD Card : 6 months from purchase date

   (if purchase date is not confirmed, it should be counted from manufacture date of SD card.)

2. Paid Service

   1) If the warranty period has passed.

   2) If a failures caused by carelessness using (drop, flooding, shock, breakage, excessive operation)

   3) If failures caused by natural disasters (fire, lightning, flood damage, etc.

   4) Failures caused by the malfunction of power in use and connected equipment.

Please keep this "Warrantee" because we will not be able to re-issue this warrantee note.

WinyTechnology Co., Ltd.
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